

# Gaston Technical Institute

A Division of North Carolina State College

The School of Engineering

Raleigh, North Carolina



**ANNOUNCEMENTS**

**FOR THE SESSION 1958-1959**

**1025 West Franklin Avenue**

**Gastonia, North Carolina**

**STATE COLLEGE RECORD**



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## WHY A TECHNICAL INSTITUTE?

Because . . . .

1. With the increase in automation comes the need for technically trained workers who have a full background of study in electronics.
2. Industry must have from three to eight engineering technicians for each engineer.
3. The South has passed the industrial stage where it can depend on skilled laborers alone.
4. The engineering technician must put into practice the ideas formulated by the engineer, and interpret these ideas for the craftsmen and other employees.



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## FOREWORD

The Gaston Technical Institute was established in 1952. The industrial and business men of Gaston County donated \$50,000. The money was used to buy the Todd residence at 510 West Airline Avenue, Gastonia, and to construct a laboratory building on the rear of the lot.

The Gaston Technical Institute is a non-profit, educational institution. The purpose of the school is to offer courses in four fields of technology covering a two-year span. Upon the successful completion of one of these courses in Civil, Electrical, Electronics, or Mechanical and Production Technology, the student will be awarded a diploma by the Engineering School of North Carolina State College.

The Engineering School of North Carolina State College is responsible for the academic program and staff appointments. The school is operated by the Extension Division as a Division of the School of Engineering.

A deed dated October 2, 1956 was presented by Harold Mercer, General Manager of Firestone Textiles, to Mr. C. C. Dawson, chairman of the Local Citizens Advisory Board of the Gaston Technical Institute. The deed conveyed three large brick buildings from the Firestone Tire and Rubber Co. to the Consolidated University of North Carolina. These buildings, at 1021 West Franklin Avenue, will be used as the new home of the Gaston Technical Institute beginning with the school year 1958-59.

## THE ENGINEERING TECHNICIAN\*

Modern industry has reached its high level of production not so much through independent individual effort as through teamwork. The engineering technician, in particular, makes his contribution primarily as a member of the engineering team. To do the best job, he should be familiar with the work of the other members of the team, which normally consists of the engineer, several technicians, and a group of skilled workmen.

### The Place of the Engineering Technician

An engineering technician engages in work that requires some of the knowledge and skills of both the professional engineer and the skilled craftsman. He is required to know basic theories and to apply them in helping to solve the complex problems of modern industry. In this way the engineering technician carries out vitally important assignments and takes his place on the engineering team.

The engineering technician usually specializes in one aspect of engineering. He might, for example, work as a draftsman, a detail designer, a cost estimator, a production supervisor, a research assistant, a quality-control supervisor, a time study man, an expeditor, a technical salesman, or a production planner.

The curriculums for a two-year technical institute include a strong background in mathematics, physics, electricity, English, and management.

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(\* "The Engineering Technician", Technical Institute Division, American Society for Engineering Education—Published by Technical Education News (McGraw-Hill.)

Special emphasis is placed on the application of these courses to the student's own field of specialization. The engineering technician has a dual role in that he must know much of the know-why of the engineer as well as the know-how of the skilled laborer. He must possess both mental and manual knowledge, as his principle job is to bind the dream, or idea, of the engineer to the finished project.

When the engineering technician has successfully completed his training, he has a broad choice of technical positions at excellent starting salaries, and he may qualify for rapid promotion in his field.

At the Gaston Technical Institute, an attempt is made to meet the demand of large industries for trained personnel, by giving the students a practical knowledge of the field in which they are specializing. Many of the graduates are immediately employed in the industries nearby.



**GASTON TECHNICAL INSTITUTE  
CALENDAR YEAR 1958-1959**

**Fall Semester, 1958**

September 8	Monday	General Faculty Meeting, 3 p.m.
September 10	Wednesday	Freshman Registration
September 11	Thursday	Upperclass Registration. Late Registration Fee of \$5.00 payable by all who register after September 11.
September 11	Thursday	Freshman Testing
September 12	Friday	Class Assignments
September 15	Monday	Classes Begin
September 19	Friday	Last Day for Registration. Last Day for Refund less \$10.00 Registration Fee.
September 26	Friday	Last Day to Add a Course
October 3	Friday	Last Day to Drop a Course without Failure
November 26	Wednesday	Thanksgiving Holiday Begins at 1 P.M.
December 1	Monday	Classwork Resumes
December 2	Tuesday	Last Day to withdraw from School without Failures
December 16	Tuesday	Christmas Holiday Begins at the end of classes
January 5, 1959	Monday	Classwork Resumes
January 20	Tuesday	Last Day of Classes
January 21-23	Wednesday-Friday	Final Examinations

**Spring Semester, 1959**

January 28	Wednesday	Registration for New Students
January 29	Thursday	Testing of New Students
January 29	Thursday	Upperclass Registration. Late Registration Fee of \$5.00 payable by all who register after Jan. 29.
January 30	Friday	Class Assignments
February 2	Monday	Classes Begin
February 6	Friday	Last Day for Registration. Last day for refund less \$10.00 registration fee.
February 13	Friday	Last Day to Add a Course
February 20	Friday	Last Day to Drop a Course without Failure
March 25	Wednesday	Easter Holiday Begins at End of Classes
April 1	Wednesday	Classwork Resumes
April 3	Friday	Last Day for withdrawing from School Without Failures
May 22	Friday	Last Day of Classes
May 25-27	Monday-Wednesday	Final Examinations
May 28	Thursday	Commencement

1959 Sessions of Summer School dates will be announced later.

# GASTON TECHNICAL INSTITUTE

## Officers of Administration

- W. C. FRIDAY, B.S., North Carolina State College; L.L.B., University of North Carolina; President, Consolidated University of North Carolina
- C. H. BOSTIAN, A.B., Catawba College; M.S., Ph.D., University of Pittsburgh; Chancellor, North Carolina State College
- J. H. LAMPE, B.S., M.S., Dr. Eng., Johns Hopkins University; Dean of School of Engineering, North Carolina State College
- R. G. CARSON, JR., B.S., Clemson College; M.S., Georgia Institute of Technology; Ph.D., University of Michigan; Director of Instruction, School of Engineering, North Carolina State College
- J. G. VANN, Business Manager, North Carolina State College
- E. W. RUGGLES, B.S., M.S., North Carolina State College; Director Division of College Extension, North Carolina State College

## Faculty

- J. I. MASON, A.B., University of North Carolina; Director, Gaston Technical Institute
- A. C. GROVES, Instructor in Electronics
- J. P. HUFFSTETLER, B.E.E., North Carolina State College; Instructor, Electronics
- J. M. JENKINS, JR., B.S., M.A., North Carolina State College; Instructor, Engineering Drawing
- ELEANOR M. MCARVER, B.S., Madison College; Instructor, English, Librarian
- R. M. MICHAEL, B.M.E., North Carolina State College; Instructor, Mechanics
- J. G. REID, B.S., Appalachian State Teachers College; Instructor, Mathematics and Physics

**CITIZENS ADVISORY BOARD**  
**GASTON TECHNICAL INSTITUTE**

- C. C. Dawson, Chairman, Cramerton, N. C.  
Executive Secretary, Combed Yarn Spinners Association, Gastonia,  
N. C.
- Alexander W. Bell, Mount Holly, N. C.  
Executive Vice-President, American-Efird Mills, Inc., Mount Holly,  
N. C.
- Charles K. Bryant, Sr., Gastonia, N. C.  
Chairman of the Board, Bryant Electric Repair Co., Inc. and Bryant  
Supply Co., Inc., Gastonia, N. C.
- S. A. Burts, Gastonia, N. C.  
Treasurer, Osage Manufacturing Co., Bessemer City, N. C.
- J. A. Hendley, Stanley, N. C.  
General Manager, Talon, Inc., Stanley, N. C.
- J. R. Hudson, Lowell, N. C.  
Insurance. Lowell, N. C.
- Howard K. Houser, Cherryville, N. C.  
Secretary-Treasurer-General Manager, Rhyne-Houser Mfg. Co., Inc.,  
Cherryville, N. C.
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Superintendent Gaston County Schools, Gastonia, N. C.
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President, Linford Mills Inc., Belmont, N. C.
- Don Maddox, Gastonia, N. C.  
Vice-President, Textiles, Inc., Gastonia, N. C.
- Harold Mercer, Gastonia, N. C.  
Vice-President, General Manager, Firestone Textiles, Gastonia, N. C.
- Coit M. Robinson, Lowell, N. C.  
President, United Spinners Corp., Lowell, N. C.
- Sam M. Stewart, Gastonia, N. C.  
President, Moore & Stewart Inc., Gastonia, N. C.
- Fred M. Waters, Gastonia, N. C.  
Superintendent Gastonia City Schools, Gastonia, N. C.
- A. K. Winget, Jr., Gastonia, N. C.  
Vice-President, Citizens National Bank, Gastonia, N. C.
- Frank A. Young, Gastonia, N. C.  
President, F. A. Young Machine Co., Gastonia, N. C.
- Charles B. Zeigler, Gastonia, N. C.  
Chairman of the Board, Public Service Company of N. C.

## THE NEED FOR A TECHNICAL EDUCATION

Recent industrial development of the South has presented a new demand for trained engineering technicians. This demand exceeds that for engineers by approximately eight to one, but engineering technicians have until recently been unable to receive their training in the South.

An official of a large industrial plant, recently located in our State, reported that their operation was retarded two years because of the lack of properly trained engineering technicians. Laborers and engineers were available.

Industry in the South cannot develop faster than these engineering technicians are available. Realizing this need, North Carolina State College has pioneered in the field and established the first Technical Institute in North Carolina and one of the first in the South.

The work for which the training prepares young men lies principally in the middle field of technical activity, between the skilled trades and professional engineering. The courses are designed to prepare young men for specific duties in a specialized field of engineering.

As defined by the Technical Institute of Engineers Council for Professional Development: "Technical Institute programs are intermediate between the high school and vocational school on one hand and the engineering college on the other. . . . The purpose is to prepare individuals for positions auxiliary to, but not in, the field of professional engineering. Curricula are essentially technological in nature, based upon principles of science; require the use of mathematics beyond high school, and emphasize rational processes rather than rules of practice. Curricula are briefer, more intensive, and more specific in purpose than collegiate engineering curricula, although they lie in the same general fields of industry and engineering. Their aim is to prepare individuals for specific technical positions or lines of activity rather than broad sectors of engineering practice."

It is the conclusion of the committee of twenty-five, appointed by the Development Council of North Carolina State College, George P. Geoghegan, Jr., Chairman, that the industries of North Carolina will need more than 5,000 engineering technicians per year for the next five years.

### Buildings and Facilities

The three buildings, comprising the working area, contain 42,000 square feet. The ground floors are occupied by the following laboratories: electronic, electrical machinery, A.C. circuits, field surveying storage, machine shop, and welding.

The first floors of the east and west buildings house the classrooms, general drafting rooms, and physics laboratory. In the administration building are the auditorium, cafeteria, student lounge, offices, and library.

For very extensive research beyond the normal level of the technical institute, the students and instructors may draw from the D. H. Hill Library of N. C. State College.

## THE SCHOOL YEAR

Two semesters make up the school year. New classes will be formed at the beginning of each semester, and new students will be accepted at the beginning of either semester. New classes will not be scheduled if there is not enrollment large enough to justify the course being given.

### Tuition and Fees

The following fees are due on registration day:

Registration Fee .....	\$ 10.00 per semester
*Tuition .....	100.00 per semester
Laboratory Fee .....	15.00 per semester
Student Activities.....	6.00 per semester
Medical Fees .....	5.00 per semester
Books and Laboratory Supplies (estimated) .....	60.00 per semester

### Room and Board

Room and board will range from \$16.00 to \$18.00 per week. The cafeteria will be operated on a non-profit basis. Married students can obtain either furnished or unfurnished apartments at various rent levels. Assistance in obtaining suitable living quarters will be given through the business office or the Gastonia Chamber of Commerce.

### Application

An application for admission must be made on special application forms furnished by the Gaston Technical Institute, or from the Division of College Extension, N. C. State College, Raleigh, N. C. Application must be accompanied by a fee of \$5.00. This fee is applied on the required registration fee for those students who are accepted. It will be refunded to students who are not accepted. It is forfeited by applicants who are accepted, but who do not enroll.

### Refunds

A refund of the amount paid the Institute, less the registration fee, is made to a student withdrawing within ten days from the date of registration. No refund will be made if a student withdraws after this 10-day period.

### Books, Equipment and Supplies

All text books, instruments and supplies needed by the student may be purchased at the Book Store operated by the Institute.

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\* Tuition for out-of-state students is \$150.00 per semester.

## Admission Requirements

Applicant will be considered for acceptance if he is a graduate of an accredited high school, and if he is recommended by his high school principal, or guidance counselor, as having a good moral character.

## Transfer Credit

The Gaston Technical Institute will accept work done at other institutions evaluated on the basis of similar study successfully pursued. However, a minimum of one year residence work is required for graduation.

## PROCEDURE IN APPLYING FOR ADMISSION

The applicant, if distance is not too great, should make a personal application. An application form and high school transcript blank may be obtained by writing the Director, Gaston Technical Institute, 1025 W. Franklin Avenue, Gastonia, N. C., telephone UNiversity 5-0500, or the Division of College Extension, N. C. State College, Raleigh, N. C.

The personal information called for on the application blank should be completed by the student. This form should then be given to the high school principal along with a stamped envelope addressed to the Gaston Technical Institute, 1025 W. Franklin Avenue, Gastonia, N. C., and \*five dollars (\$5.00), check or money order, to be submitted with the completed high school transcript.

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\* The \$5.00 application fee may be paid separately, but action on application will not be taken until this deposit is received.



## Late Registration

An extra fee is charged for registration after the days designated: \$2.00 for the first day and \$1.00 for each additional day.

## Regulations

A student is expected to abide by the regulations set up by the administration as necessary for the successful operation of the Gaston Technical Institute. By proper adherence to the regulations as published from time to time, the student will help himself and the school.

## Grade Systems

	Grade point equivalent
A—Excellent	4 quality points for each credit hour
B—Good	3 quality points for each credit hour
C—Fair	2 quality points for each credit hour
D—Passing	1 quality point for each credit hour
F—Failure	0 quality point for each credit hour
Abs.—Absent from examination (Equivalent to failure unless excused)	
Inc.—Incomplete (An incomplete signifies that the student has passed the final examination but is incomplete in some report or other work assigned by his instructor or that he has an excused absence for the final examination, which will be given him at some later date. An "Inc." must be completed satisfactorily during the next term or it automatically becomes an "F".)	

## Graduation Requirements

A Diploma in the selected technological field will be awarded by the School of Engineering of North Carolina State College to the applicant who has successfully completed the prescribed course of study.

A fee of \$3.00, covering the cost of diploma, is charged candidates during the last semester prior to graduation.

## COURSE NUMBERS

The courses are numbered as follows: The first digit signifies the year of study; the second digit signifies the semester in which the course is given; and the third digit denotes the number of the course in that particular field of study.

For example, ET 225 will mean that the course will be taken in the second year, the second semester, and will be the fifth course offered in Electricity.

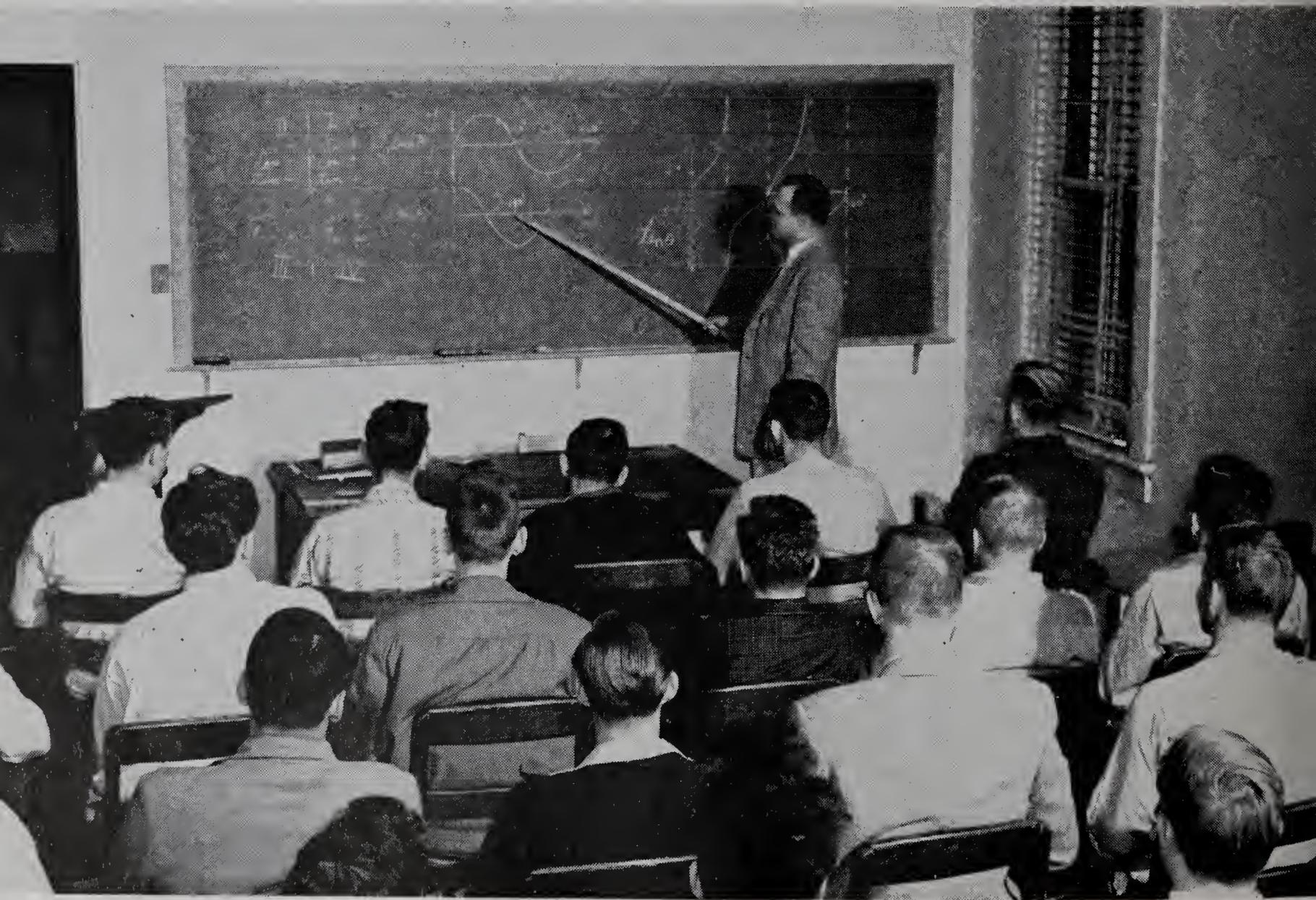
## COURSE OF STUDY

### Civil Technology

The two-year program in Civil Technology is founded upon a sufficiently broad base of subject matter and courses to equip the graduate for technical work in a number of different career fields. As a technical aid or assistant to the Civil Engineer, the graduate of this program may work in the field of engineering layout of highway and other types of construction; as a draftsman and detailer for structural fabricating companies and bridge departments; as an inspector of materials and methods of construction; as an estimator for construction contractors; or he may pursue a career in land and property surveying. The program also gives training in methods and equipment used in heavy engineering types of construction and considerations of the provisions and practical applications of construction contracts and specifications.

The purpose of the course in Civil Technology is to equip the student with knowledge of practical applications within the broad field of Civil Engineering, on as wide a basis as may be accomplished in a two-year program.

A more complete description of each course required is found in the back of this catalogue.



# CIVIL TECHNOLOGY

## FIRST YEAR

### 1st SEMESTER

Symbols	Subject Title	Rec.	Lab.	TI Cr.
DT	111—Engineering Drawing	0	6	2
MT	111—Algebra	5	2	5
ENT	111—English	5	0	5
PT	111—Physics I	5	3	6
SP	111—General Shop	0	3	1
		<u>15</u>	<u>14</u>	<u>19</u>

### 2nd SEMESTER

DT	122—Engineering Drawing	0	6	2
MT	122—Trigonometry	5	2	5
ENT	122—English	5	0	5
PT	122—Physics II	5	3	6
SP	122—General Shop	0	3	1
		<u>15</u>	<u>14</u>	<u>19</u>

## SECOND YEAR

### 1st SEMESTER

CT	211—Plane & Topographic Surveying	3	6	5
DF	215—Highway Drafting	0	6	2
CT	212—Contracts and Specifications	2	0	2
CT	213—Estimates and Costs	2	3	3
CT	214—Control of Construction Materials	2	3	3
		<u>9</u>	<u>18</u>	<u>15</u>

### 2nd SEMESTER

CT	226—Highway Curves and Earthwork	3	6	5
DT	227—Structural Drafting	0	6	2
CT	227—Construction Methods and Equipment	3	0	3
CT	228—Control of Construction Materials	2	3	3
ENT	223—Technical Reports	2	0	2
		<u>10</u>	<u>15</u>	<u>15</u>



## Electrical Technology

The curriculum in Electrical Technology is designed to train technicians for that large area of opportunity lying between the electrician's helper and the electrical engineer. The program is founded on a carefully selected group of courses that will enable the graduate to enter a wide number of activities such as drafting, electrical sales, supervision of electrical installations, maintenance of power plants and other electrical equipment, and electrical contracting.

A description of the courses in Electrical Technology will be found in the back of this catalogue.

### ELECTRICAL TECHNOLOGY

#### FIRST YEAR

##### 1st SEMESTER

Symbols	Subject Title	Rec.	Lab.	TI Cr.
DT	111—Engineering Drawing .....	0	6	2
MT	111—Algebra .....	5	2	5
ENT	111—English .....	5	0	5
PT	111—Physics I .....	5	3	6
SP	111—General Shop .....	0	3	1
		—	—	—
		15	14	19

##### 2nd SEMESTER

DT	122—Engineering Drawing .....	0	6	2
MT	122—Trigonometry .....	5	2	5
ENT	122—English .....	5	0	5
PT	122—Physics II .....	5	3	6
SP	122—General Shop .....	0	3	1
		—	—	—
		15	14	19

#### SECOND YEAR

##### 1st SEMESTER

DT	213—Electrical Drafting .....	0	3	1
ET	211—A-C Circuits .....	5	3	6
ET	212—Electrical Machinery I .....	5	3	6
ELT	211—Electron Tubes and Circuits .....	5	3	6
		—	—	—
		15	12	19

##### 2nd SEMESTER

IT	225—Personnel Supervision .....	3	0	3
ET	223—Wiring and Specifications .....	2	6	4
ET	224—Electrical Control Circuits .....	3	3	4
ET	225—Electrical Machinery II .....	5	3	6
ENT	223—Technical Reports .....	2	0	2
		—	—	—
		15	12	19

## Electronics Technology

The curriculum in Electronics Technology is designed to train technicians to install, maintain and repair electronic devices for communications and industrial control, and to prepare technicians to help engineers in the development of new applications of electronic devices.

There is a bright future for the Electronics Technology graduate in the building, installation, and maintenance of the electronic devices that are now considered essential to so many phases of our industrial society.

A description of the courses in Electronics Technology will be found in the back of this catalogue.

### ELECTRONICS TECHNOLOGY

#### FIRST YEAR

##### 1st SEMESTER

Symbols	Subject Title	Rec.	Lab.	TI Cr.
DT 111	—Engineering Drawing .....	0	6	2
MT 111	—Algebra .....	5	2	5
ENT 111	—English .....	5	0	5
PT 111	—Physics I .....	5	3	6
SP 111	—General Shop .....	0	3	1
		15	14	19

##### 2nd SEMESTER

DT 122	—Engineering Drawing .....	0	6	2
MT 122	—Trigonometry .....	5	2	5
ENT 122	—English .....	5	0	5
PT 122	—Physics II .....	5	3	6
SP 122	—General Shop .....	0	3	1
		15	14	19

#### SECOND YEAR

##### 1st SEMESTER

DT 213	—Electrical Drafting .....	0	3	1
ET 211	—A-C Circuits .....	5	3	6
ET 212	—Electrical Machinery .....	5	3	6
ELT 211	—Electron Tubes & Circuits .....	5	3	6
		15	12	19

##### 2nd SEMESTER

ENT 222	—Electronic Circuits and Instruments .....	3	3	4
IT 225	—Personnel Supervision .....	3	0	3
ELT 224	—Codes, Regulations and Specifications .....	2	3	3
ELT 223	—Communication Techniques .....	5	6	7
ENT 223	—Technical Reports .....	2	0	2
		15	12	19

## Mechanical and Production Technology

All industries have a demand for engineering technicians who are specifically trained to assist engineers in the design of machinery and equipment and the production of all material goods. Students in this area have specific training in tools and machines with emphasis upon the design and maintenance of production equipment as well as the mass production of goods produced through machine operations.

The development of new and improved machinery and the expansion of industry in the South require an evergrowing force of mechanical technicians for production. The curriculum in Mechanical and Production Technology has as its objective the training of personnel to assist the engineer on the small industry in the planning of production equipment, supervision of personnel, and mass production of material goods which will meet the rigid standards of quality demanded by the public.

A more complete description of the course is Mechanical and Production Technology will be found in the description of the individual courses.

### MECHANICAL AND PRODUCTION TECHNOLOGY

#### FIRST YEAR 1st SEMESTER

Symbols	Subject Title	Rec.	Lab.	TI Cr.
DT 111	—Engineering Drawing .....	0	6	2
MT 111	—Algebra .....	5	2	5
ENT 111	—English .....	5	0	5
PT 111	—Physics I .....	5	3	6
SP 111	—General Shop .....	0	3	1
		15	14	19

#### 2nd SEMESTER

DT 122	—Engineering Drawing .....	0	6	2
MT 122	—Trigonometry .....	5	2	5
ENT 122	—English .....	5	0	5
PT 122	—Physics II .....	5	3	6
SP 122	—General Shop .....	0	3	1
		15	14	19

#### SECOND YEAR 1st SEMESTER

SP 213	—Machine Shop .....	0	3	1
IT 213	—Tool & Die Design .....	2	3	3
IT 211	—Statics & Strength of Material .....	5	0	5
DT 214	—Descriptive Geometry .....	0	3	1
IT 212	—Materials .....	3	0	3
ET 213	—Electric Circuits & Machines .....	5	3	6
		15	12	19

#### 2nd SEMESTER

IT 225	—Personnel Supervision .....	3	0	3
DT 226	—Machine Drafting .....	0	3	1
IT 224	—Production Technology .....	4	3	5
SP 224	—Machine Shop .....	1	3	2
ENT 223	—Technical Reports .....	2	0	2
IT 226	—Production & Quality Control .....	5	3	6
		15	12	19

# DESCRIPTION OF COURSES

## Civil Technology

- CT 211 PLANE AND TOPOGRAPHIC SURVEYING 5(3-6)  
Study and application: taping, transit, level, and stadia in plane and topographic surveying and mapping; survey closures and area computations; care and adjustment of instruments.
- CT 212 CONTRACTS AND SPECIFICATIONS 2(2-0)  
Construction contract documents and specifications; owner, engineer, contractor relationships and responsibilities; bidding procedures; contract performance requirements. Real property and legal aspects of land surveying.
- CT 213 ESTIMATES AND COSTS 3(2-3)  
Analysis of plans and specifications for construction requirements; material quantity survey; labor requirements; complete estimates of costs.
- CT 214 CONTROL OF CONSTRUCTION MATERIALS 3(2-3)  
Application of standard methods of testing and control with respect to materials of construction, including: mortar, brick, concrete, timber, steel, bituminous materials and soils. Elements of design and control of concrete and bituminous mixes.
- CT 226 HIGHWAY CURVES AND EARTHWORK 5(3-6)  
Construction surveys; earthwork computations; route surveys; simple, compound, and spiral curves; vertical parabolic curves; chainage equations.
- CT 227 CONSTRUCTION METHODS AND EQUIPMENT 3(3-0)  
Performance characteristics of construction equipment; ownership and operating costs; construction methods; selection and applications of equipment.
- CT 228 CONTROL OF CONSTRUCTION MATERIALS 3(2-3)  
Continuation of CT 214

## Drafting

- DT 111 ENGINEERING DRAWING 2(0-5)  
The beginner is taught the use and care of instruments, geometric constructions, orthographic and auxiliary projection, sketching, and lettering techniques.
- DT 122 ENGINEERING DRAWING 2(0-6)  
Continuation of Drawing I devoted to drafting room practices, threads, gears, and cams, working and assembly drawing, dimensions and sections, and lettering.
- DT 213 ELECTRICAL DRAFTING 1(0-3)  
Symbols for electrical wiring, preparation of drawings for construction, and preparation of drawings for electronic installations such as transmitters.
- DT 214 DESCRIPTIVE GEOMETRY 1(0-3)  
Theory of projection drawing and its application in solving practical problems by projection and revolution of points, lines, planes, and solids.

**DT 215 HIGHWAY DRAFTING**

2(0-6)

Development of working drawings and details for roadway and pavement constructions including alignment, grade, sections, intersections and interchanges.

**DT 226 MACHINE DRAFTING**

1(0-3)

Machine drafting including projection, cross section, etc., and preparation of plans for manufacturing; blueprinting.

**DT 227 STRUCTURAL DRAFTING**

2(0-6)

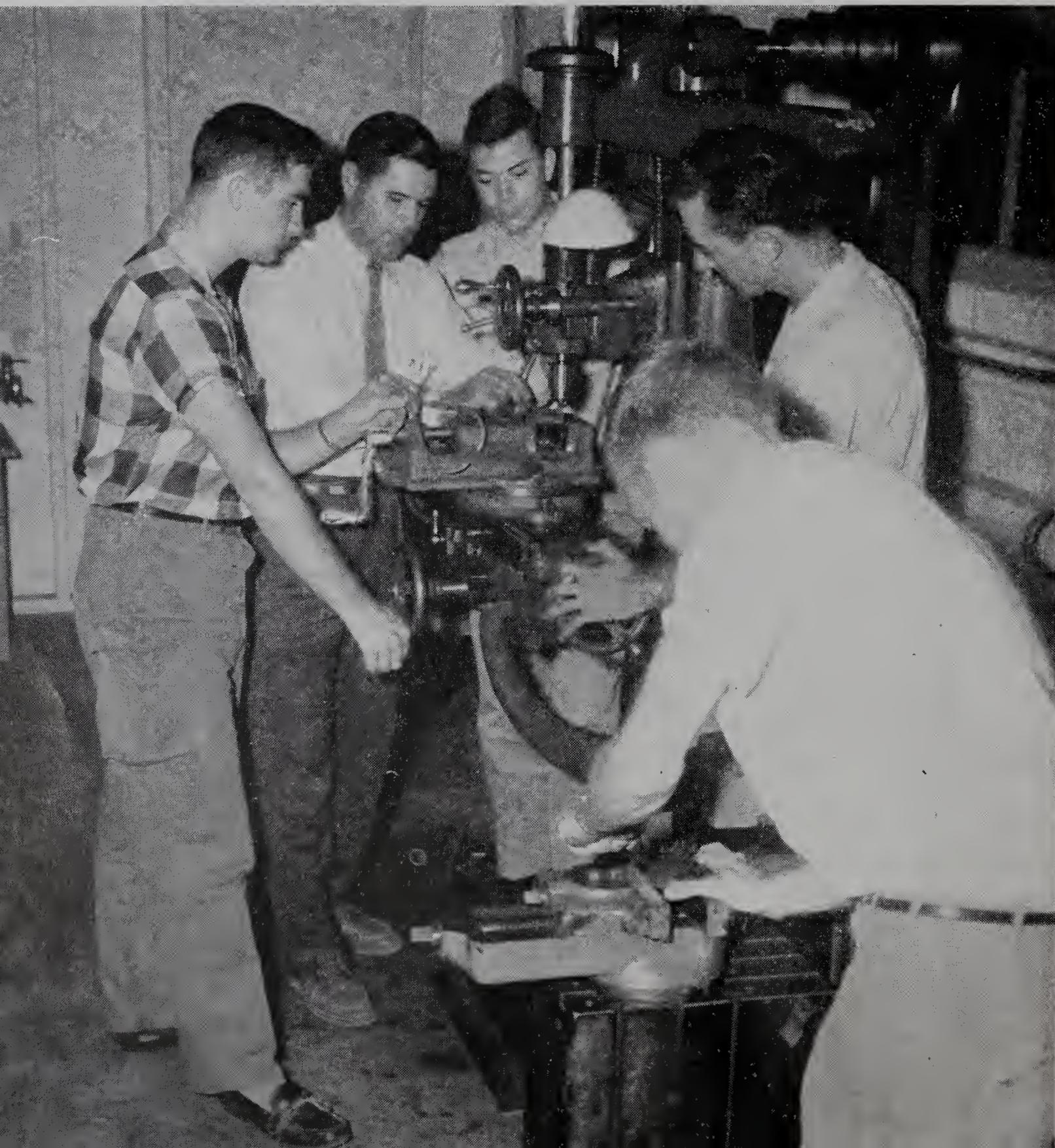
Development of working drawings and details for timber, steel, and concrete structures, including bridges and buildings.

## **Electrical Technology**

**ET 211 A. C. CIRCUITS**

6(5-3)

Definitions; reasons for using A.C., resistance, inductance and capacitance in the A.C. Circuit, single phase circuit relations, three-phase circuit relations, measurement of power.



- ET 212 ELECTRICAL MACHINERY** 6(5-3)  
 D-C Generators; the automobile generator and the voltage regulator; D-C motors; speed and torque relations; starting D-C motors; protection of D-C motors. Single-phase transformer. Single-phase motors.
- ET 213 ELECTRIC CIRCUITS AND MACHINES** 6(5-3)  
 DC and AC circuits and machines including the various types of motors, also transformers and fundamentals of controls and control circuits.
- ET 223 WIRING AND SPECIFICATIONS** 4(2-6)  
 Planning layouts for industrial installations, specifications for materials, codes and regulations, and inspection. Study of requirements for electrical contractors license.
- ET 224 ELECTRICAL CONTROL CIRCUITS** 4(2-3)  
 Automatic controls for electrical machinery. Control circuits for residential heating installations. Electronic control circuits and applications.
- ET 225 ELECTRICAL MACHINERY II** 6(5-3)  
 Applications of D-C motors; the series and compound motors. The polyphase induction motors; squirrel-cage and wound-rotor motors; starting induction motors; applications of induction motors. Synchronous motors and power factor correction. Applications of synchronous motors.

## Electronics Technology

- ELT 211 ELECTRON TUBES AND CIRCUITS** 6(5-3)  
 Physical characteristics of electron tubes. Study of the construction of the diode, the triode and the pentode. Static characteristic curves of tubes. Elementary amplifier and rectifier circuits. Vacuum and gas filled rectifiers.
- ELT 222 ELECTRONIC CIRCUITS AND INSTRUMENTS** 4(3-3)  
 Application of A-C theory of electronic circuits; amplifier circuits; dynamic characteristic curves of tubes; methods of using the cathode ray oscilloscope, the vacuum tube voltmeter and multimeter; power supplies and filter circuits.
- ELT 223 COMMUNICATION TECHNIQUES** 7(5-6)  
 Study of wire communication circuits; study of radio and television circuits; special testing equipment; servicing and trouble shooting on transmitters and receivers.
- ELT 224 CODES, REGULATIONS AND SPECIFICATIONS** 3(2-3)  
 A study of National Electric Code requirements for installation of communication circuits. Planning installations and preparation of drawings. Study of FCC rules and regulations.

## English

- ENT 111 ENGLISH** 5(5-0)  
 Intensive grammar review and practical training in the basic principles of composition. Vocabulary study of standard and technical terms and phraseology. Introduction to principles of public speaking.
- ENT 122 ENGLISH** 5(5-0)  
 A practical course designed to apply the principles of composition to effective business correspondence. Directed supplementary reading. Extemporaneous speeches. Term paper based on specific field of technology.

Study and practice in the fundamentals of technical report writing, including style and the mechanics in preparing reports of various types which are most likely to be used by technicians.

## Mathematics

### MT 111 COLLEGE ALGEBRA

5(5-2)

A brief review of high school algebra, systems of linear and quadratic equations, graphing quadratics and conic sections, binomial expansion, and progressions. Emphasis is placed on the use of the slide rule and practical applications. Five one-hour lectures and one two-hour problem period.

### MT 122 PLANE TRIGONOMETRY

5(5-2)

Logarithms, trigonometric functions, solution of the right triangle by use of natural functions and logarithms of the functions. Solution of oblique triangles, functions of two or more angles, slide rule and practical applications. Five one-hour lectures and one two-hour problem period.

## Industrial Technology

### IT 211 STATICS AND STRENGTH OF MATERIALS

5(5-0)

Forces, resultants, and equilibrium by analytical and graphical methods; stresses in simple trusses; shear and bending moment diagrams. Internal stresses of tension, compression, and shear in beams and columns of timber, concrete, and steel.

### IT 212 MATERIALS

3(3-0)

A study of the most important materials used in engineering work including wood, concrete, steel, etc.

### IT 213 TOOL AND DIE DESIGN

3(2-3)

A practical course in which parts, jigs, fixtures and dies are designed in actual layout on the drawing board. Emphasis is placed on the fundamental purpose of tool and die design to reduce the cost of the finished commodity, to simplify design, save materials and to eliminate unnecessary manufacturing steps.

### IT 224 PRODUCTION TECHNOLOGY

5(4-3)

Plant arrangement and layout for the most effective utilization of space and cost for the modern production type of plant, includes organization control, material flow and handling, working conditions, safety, and other factors as they affect the most satisfactory layout of the plant. Principles and techniques of motion and time study. Detail study of operator movements includes stop-watch time study with emphasis on rating and productions.

### IT 225 PERSONNEL SUPERVISION

3(3-0)

Industrial responsibility, authority, and job instruction. Personnel leadership. Subject concerns the supervisor or foreman as it relates to the cost of materials, production, quality, personnel management, and manager of an industrial department.

### IT 226 PRODUCTION AND QUALITY CONTROL

6(5-3)

Methods of inspecting material produced in a production shop. The planning, scheduling, and dispatching of production in manufacturing operations. Construction of production and its relation to labor, materials, and machines.

## Physics

### PT 111 PHYSICS I

6(5-3)

General Physics. An analytical approach to the principles of mechanics, heat, and sound. Emphasis is placed on problem solving and engineering applications. Lectures, problem drill, and laboratory work are co-ordinated to enable a better understanding of the principles of general physics. Five lecture hours and one three-hour laboratory period per week.

### PT 122 PHYSICS II

6(5-3)

General Physics. A study of electricity and magnetism, light, and a survey of modern physics. Emphasis is placed on problem solving and engineering applications. Five lecture hours and one three-hour laboratory period per week.

## Shop Practice

### SP 111 GENERAL SHOP

1(0-3)

The use of basic hand tools, elementary machine and bench work, forging, heat treating, sheetmetal, oxyacetylene and arc welding.

### SP 122 GENERAL SHOP

1(0-3)

A continuation of Shop 111 with advanced projects in the general metals field.

### SP 213 MACHINE SHOP

1(0-3)

The use of precision gauges, taper turning, gear cutting, thread cutting and general machine shop practices.

### SP 224 MACHINE SHOP

2(1-3)

Making student designed tools, working from drawings. Use of precision measuring instruments.

## ACTIVITIES

The Gaston Technical Institute offers a program of extra-curricular activities to provide the recreational requirement of the students. These activities are available to everyone interested. During the fall, touch football is the intramural sport in which most of the students take part. The teams are composed of the boys from the different departments of the school. Basketball becomes a major sport during the winter term, and a very rigid schedule is set up within the various athletic teams of the city. Following the basketball season, a softball team is organized and games are regularly scheduled.

The municipal recreational facilities of the City of Gastonia are available to the student body. Other sports include tennis, golf, volleyball, table tennis, bowling and swimming.

In addition to the school sponsored activities, students have the opportunity to attend many of the largest athletic contests of the state, including football, basketball, baseball, boxing and ice hockey.

# EXAMPLES OF JOB OPPORTUNITIES FOR THE Engineering Technician

## Civil Technology

- A. Highway Engineering Aide: Assists in determining route locations, cross-section surveys, estimates of quantities, and control stake-out for construction.
- B. Highway Draftsman: Assists in the preparation of plans and details of alignment, grade, sections, and interchanges for highway construction contracts.
- C. Structural Draftsman: Assists in the preparation of plans and contract drawings for fabrication and construction of timber, steel, and concrete structures, including bridges and buildings.
- D. Construction Engineering Aide: Serves as inspector of materials and methods of construction to assure desired control and effect compliance with contract requirements.
- E. Estimator: Prepares estimates of quantities of materials and labor from plans and specification for construction contracts.
- F. Land Surveyor: Assists in the determination and re-establishment of property lines, boundaries, and corners in land surveying; computes areas and acreages; assists in survey work in land property subdivision developments.

## Electrical Technology

- A. Electrical cost estimator: Prepares from specifications cost analyses of electrical installations or modifications.
- B. Electrical draftsman: Prepares wiring diagrams for installation of electrical equipment.
- C. Powerhouse technician: Inspects, repairs and maintains equipment in a substation or powerhouse.
- D. Sales technician: Sells electrical equipment and prepares information regarding sales of electrical equipment.
- E. Technical writer: Assists in preparing reports, bulletins, manuals and catalogues pertaining to the power industry.
- F. Electrical contracting: Provides basic information for men interested in this field.

## Electronics Technology

- A. Engineering Aide: Assists engineer in design production and testing of electronic equipment.

- B. Recording technician: Operates recorders in radio or television broadcast studios. Makes kinescopes of television programs.
- C. Sales technician: Sells and gives technical information on electronic equipment.
- D. Transmitter technician: Operates the radio or television transmitter, and advises on compliance with Federal Communication Rules and Regulations.

## **Mechanical and Production Technology**

- A. Engineering aide: Assists the engineer in the design of mechanical machinery.
- B. Engineering draftsman: Prepares plans and specifications for the mechanical production of materials usually manufactured in a production shop.
- C. Estimator of costs of production.
- D. Maintenance of machinery and equipment in a production type shop.
- E. Supervision of personnel under the direction of an engineer for the production of mechanical goods.
- F. Operation of his own business in various phases of the mechanical industry.
- G. Writing technical reports and giving technical assistance and information to prospective purchasers.



## Firms Where Gaston Technical Institute Graduates Have Found Employment

<p>Akers Motor Lines Gastonia, N. C.</p> <p>American Telephone &amp; Telegraph Co. Durham, N. C., Richmond, Va.</p> <p>Army Ballistic Missile Agency Huntsville, Ala.</p> <p>Associated Transport, Inc. Burlington, N. C.</p> <p>Barnhill Electric Co. Fayetteville, N. C.</p> <p>Bildberg-Rothchild Co. New York, N. Y.</p> <p>Bryant Electric Co. Gastonia, N. C.</p> <p>Boyette Electric Co. Smithfield, N. C.</p> <p>Burlington Mills, Truck Division Gastonia and Burlington, N. C.</p> <p>Camp Lejeune Utility Co. Camp Lejeune, N. C.</p> <p>Cocker Machine Shop Gastonia, N. C.</p> <p>Carolina Freight Carriers Corp. Cherryville, N. C.</p> <p>Carolina Power &amp; Light Co. Raleigh, N. C.</p> <p>Chrysler-Plymouth Co. Laurinburg, N. C.</p> <p>DeSoto-Plymouth Co. Burlington, N. C.</p> <p>Dixie Radio Supply Gastonia, N. C.</p> <p>Dick's Electric Co. Wilson, N. C.</p> <p>Duke Power Co. Charlotte, N. C. Spartanburg, S. C. Belmont, N. C.</p> <p>E. I. DuPont de Nemours &amp; Co., Inc. Kinston, N. C.</p> <p>Electronic Service Center Gastonia, N. C.</p> <p>Firestone Textile (Electrical Dept.) Gastonia, N. C.</p> <p>F. D. Cline Paving Co. Fayetteville, N. C.</p> <p>Folger, Lee A. Co. Charlotte, N. C.</p> <p>Farmers Truck &amp; Tractor Louisburg, N. C.</p> <p>Funderburk Furniture Co. Bennettsville, S. C.</p> <p>Gastonia Truck &amp; Tractor Co. Gastonia, N. C.</p> <p>General Foundry &amp; Machine Co. Sanford, N. C.</p> <p>General Electric Co. Hickory, N. C. East Flat Rock, N. C.</p> <p>Genuine Parts, Inc. Gastonia, N. C.</p> <p>Griffin Supply Co. Gastonia, N. C.</p> <p>Gulf Oil Co. Charlotte, N. C.</p> <p>Hickory, City of Hickory, N. C.</p> <p>Hollingsworth-GMC (Sales) Charlotte, N. C.</p> <p>Howards Newport, N. C.</p> <p>International Business Machines Corp. Poughkeepsie, N. Y.</p>	<p>International Harvester Co. Louisburg, N. C.</p> <p>Denver, Colo.</p> <p>International Resistance Co. Boone, N. C.</p> <p>Jent Construction Co. Winston-Salem, N. C.</p> <p>Jones Furniture Co. Sanford, N. C.</p> <p>J. A. King &amp; Co. High Point, N. C.</p> <p>Lingerfelt Electric Co. Lincolnton, N. C.</p> <p>Lockheed Aircraft Marietta, Ga.</p> <p>Mack Truck, Inc. Charlotte, N. C.</p> <p>McGraw Edison Co. Clayton, N. C.</p> <p>Moore &amp; Stewart Gastonia, N. C.</p> <p>MacArthur Tin Shop Shelby, N. C.</p> <p>Mutual Auto Service Raleigh, N. C.</p> <p>Melpar, Inc. Falls Church, Va.</p> <p>Morgan Oil Corp. Laurinburg, N. C.</p> <p>N.A.P.A. Charlotte, N. C.</p> <p>Poston Realty Co. Gastonia, N. C.</p> <p>Pyramid Electric Co. Gastonia, N. C.</p> <p>Radio Corporation of America West Palm Beach, Fla. Cocoa, Fla. Patrick's Air Force Base, Fla.</p> <p>R.C.A. Service Co. Charlotte, N. C.</p> <p>Radio Sales &amp; Service Taylorsville, N. C.</p> <p>Robbins Discount House Robbins, N. C.</p> <p>Remington Rand Co. Charlotte, N. C.</p> <p>R. J. Reynolds Tobacco Co. Winston-Salem, N. C.</p> <p>Saco-Lowell Sanford, N. C.</p> <p>Seth Lumber Co. Mt. Holly, N. C.</p> <p>Salem Steel Co. Winston-Salem, N. C.</p> <p>Sears, Roebuck Co. Greensboro, N. C.</p> <p>Southeastern Radio Supply Co. Gastonia, N. C. Rocky Mount, N. C. Hickory, N. C.</p> <p>Southern Bell Telephone &amp; Telegraph Co. Greensboro, N. C.</p> <p>Southern Railway Spencer, N. C.</p> <p>Stewart Woodworks, Inc. Hickory, N. C.</p> <p>Southern Flight, Inc. Charlotte, N. C.</p> <p>Thomas Cadillac-Olds, Inc. Charlotte, N. C.</p> <p>Tidewater Gas Co. New Bern, N. C.</p>
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Virginia Power & Light Co.  
Williamston, N. C.  
Warners, D. T.  
Norman, N. C.  
Western Electric  
Charlotte, N. C.  
Western Union Telegraph Co.  
Norfolk, Va.; Charlotte, N. C.  
Wilson Motor Co.  
Mt. Olive, N. C.  
W. E. Graham & Sons  
Cleveland, N. C.  
White, Joe M.—Auto Service  
Raleigh, N. C.  
WIX Corp.  
Gastonia, N. C.

#### RADIO STATIONS

WBIG—Greensboro, N. C.  
WBLT—Bedford, Va.  
WBMA—Beaufort, N. C.  
WCEC—Rocky Mount, N. C.

WFMA—Rocky Mount, N. C.  
WFTC—Kinston, N. C.  
WGTC—Greenville, N. C.  
WHKP—Hendersonville, N. C.  
WJNC—Jacksonville, N. C.  
WLON—Lincolnton, N. C.  
WMIT-FM—Clingman's Peak  
WNNC—Newton, N. C.  
WSOC—Charlotte, N. C.  
WTOB—Winston-Salem, N. C.  
WVOT—Wilson, N. C.

#### TELEVISION STATIONS

WBTW—Florence, S. C.  
WITN—Washington, N. C.  
WSPA—Spartanburg, S. C.  
WNCT—Greenville, N. C.  
WSOC—Charlotte, N. C.  
WTVD—Durham, N. C.  
WTVL—Greenville, S. C.  
WRAL-TV—Raleigh, N. C.  
WUNC—Chapel Hill, N. C.









